

PATENT SPECIFICATION
NO DRAWINGS

1,067,462



1,067,462

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No. 17831/64.

Application made in Germany (No. C30279 IVc/22g) on June 26, 1963.

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Int. Cl.: —C 09 d 9/02

COMPLETE SPECIFICATION

Stain-removers

We, COLLO-RHEINCOLLODUM KÖLN G.m.b.H., WERK HERSEL, of 2, Simon-Arzt-Strasse, Hersel bei Bonn, Germany, a Corporation organised under the laws of Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 The present invention is concerned with stain removers which have a dirt-dissolving

The present invention provides a method of producing a stain remover for removing stains from the surface of articles, such as wooden furniture, wherein an aqueous dispersion of an abrasive, which is so finely ground that the particles thereof exhibit van de Waal's forces, is mixed simultaneously or successively with a lubricant and a wax-like, surface-polishing agent (as hereinafter defined), together with an emulsifier for said lubricant and said wax-like, surface-polishing agent; at

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ERRATUM

SPECIFICATION No. 1,067,462

Page 1, Heading, Date of Application and
Complete Specification: for "April 26,
1964." read "April 29, 1964."

THE PATENT OFFICE
11 January 1968

25 polished furniture which is spotted or stained by various forms of dirt and soiling substances, such as coloured crayon, lipstick, ink, flyblow, alcohol and tar, because, as a rule, a good deal of the stain is left behind. Furthermore, the known agents used for this purpose have a tendency to remove at least a substantial amount of the polish from the region being cleaned. It is more difficult still to remove, with one and the same stain remover, all of the various kinds of dirty marks which may occur in practice from different causes.

However, an important feature of spot or stain removers is that such agents must not harm the human skin, so as to cause, especially 40 in the case of allergic people, inflammation and forms of eczema. Furthermore, stain removers should be in a handy form which is always ready for use.

to cold, heat and water and abrasion resistance. Examples of such wax-like surface-polishing agents include ceresin, ester waxes and polyethylene oxide waxes.

By "biologically-decomposable fatty acid derivatives", there are to be understood straight-chain fatty acids *per se*, fats and straight-chain fatty acid derivatives, such as detergents, which can be at least 80% decomposed stepwise by lipase and coenzyme A (see Lyon and Green, *Sci. Am.* J., 54, pp. 32 to 36). It will be appreciated that some of fatty acid derivatives which can be used, such as fatty acid-based detergents, are self-emulsifying, i.e. it is not necessary to use an additional emulsifier. When an emulsifier is necessary, this can be, for example, a fatty alcohol polyglycol ether, or a fatty amine polyglycol ether.

The final division

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COMPLETE SPECIFICATION

Stain-removers

We, COLLO-RHEINCOLLODUM KÖLN G.m.b.H., WERK HERSEL, of 2, Simon-Arzt-Strasse, Hersel bei Bonn, Germany, a Corporation organised under the laws of Germany,

5 do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 The present invention is concerned with stain removers which have a dirt-dissolving action, are useful for the mild treatment of stained surfaces and exhibit good skin tolerance. More particularly, the stain removers according to the present invention are

15 useful for removing stains from surfaces of articles, such as of wooden furniture.

Spot-cleaning liquids and caustic or polishing agents are known. They often consist of

20 highly aggressive solvents which attack the surface of stained wooden articles and render complete removal of a stain impossible. On the other hand, it is very difficult to clean polished furniture which is spotted or stained by various forms of dirt and soiling substances, such as coloured crayon, lipstick, ink, flyblow, alcohol and tar, because, as a rule, a good deal of the stain is left behind. Furthermore, the known agents used for this

25 purpose have a tendency to remove at least a substantial amount of the polish from the region being cleaned. It is more difficult still to remove, with one and the same stain remover, all of the various kinds of dirty marks which may occur in practice from different causes.

30 However, an important feature of spot or stain removers is that such agents must not harm the human skin, so as to cause, especially in the case of allergic people, inflammation and forms of eczema. Furthermore, stain removers should be in a handy form which is always ready for use.

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The present invention provides a method of producing a stain remover for removing stains from the surface of articles, such as wooden furniture, wherein an aqueous dispersion of an abrasive, which is so finely ground that the particles thereof exhibit van de Waal's forces, is mixed simultaneously or successively with a lubricant and a wax-like, surface-polishing agent (as hereinafter defined), together with an emulsifier for said lubricant and said wax-like, surface-polishing agent; at least one solvent for the coating or polish on the surface to be cleaned, and an emulsifier for said solvent; and a biologically-decomposable fatty acid derivative (as hereinafter defined) which acts as a skin preserver, together, if necessary, with an emulsifier for said fatty acid derivative.

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By "wax-like, surface-polishing agents", there are to be understood all materials which, when applied to surfaces, give a finish similar to bees' wax with regard to ductility of the finish, gloss, adhesion, hardness, resistance to cold, heat and water and abrasion resistance. Examples of such wax-like surface-polishing agents include ceresin, ester waxes and polyethylene oxide waxes.

By "biologically-decomposable fatty acid derivatives", there are to be understood straight-chain fatty acids *per se*, fats and straight-chain fatty acid derivatives, such as detergents, which can be at least 80% decomposed stepwise by lipase and coenzyme A (see Lyon and Green, *Sci. Am.* J., 54, pp. 32 to 36). It will be appreciated that some of fatty acid derivatives which can be used, such as fatty acid-based detergents, are self-emulsifying, i.e. it is not necessary to use an additional emulsifier. When an emulsifier is necessary, this can be, for example, a fatty alcohol polyglycol ether, or a fatty amine polyglycol ether.

The finely-divided abrasive substances used

[Price 4s. 6d.]

in the stain removers of the present invention have the function of attracting and holding fast the soiling matter by means of the van der Waal's forces which they possess. Because 5 of the extremely finely-ground state of these abrasive substances, they also exert a mechanical cleaning action, without producing perceptible scratching. The lubricant in the stain removers promotes the rubbing in thereof on the surface to be cleaned, for example, a surface of a table or other article of furniture.

Finally, the solvent for the coating or polish on the surface to be cleaned which is preferably a high-boiling solvent, brings 10 about a superficial swelling of the polish on the surface to be cleaned, without exerting an injuriously deep action, so that the abrasive is able to have its effect in this expanded layer. The addition of biologically-decomposable fatty acid derivatives ensures that the stain remover of the present invention will be harmless in use, even for very sensitive hands.

A preferred abrasive is very fine quartz powder with a particle size of preferably 0.05 25 to 0.1 microns since, due to its surface properties, it attracts dirt and leaves it clinging to the tissue which has been impregnated with the stain remover. The same effects may be achieved with cellulose, pumice powder, 30 corundum, and aluminium phosphate, providing that these are ground to such a degree of fineness that the particles thereof exhibit van der Waal's forces.

Paraffin oil may be used as the lubricant, 35 ceresin or ester waxes as surface-polishing agent and, as emulsifier for these materials, the diethanolamine salt of oleic acid may be used. It is particularly advantageous to use an emulsifier of this type since, at the same time, it also fulfills the role of fatty acid derivative. These materials are used because they have the property of restoring the original polish on the surface being cleaned, after removal of the stain.

45 Since the surface coating or surface polishes on furniture may be of very different origin, depending on the type of varnish or polishing medium which was employed, the solvent or solvent mixture added to the 50 emulsion must be capable of swelling or dissolving the various forms of polish which may constitute the said surface coatings, such solvents including, for example, dibutyl phthalate, methoxy-butanol, diacetone alcohol and higher esters of glycolic acid. A preferred emulsifier for the solvent or solvent mixture is a ricinoleic acid polyglycol ester.

The stain remover contains a number of 60 substances which may prove injurious to the human skin, for which reason oleic acid diethanolamides are preferably also used as biologically-decomposable fatty acid derivatives.

To improve the hardness of the stain removers of the present invention, highly ab-

sorbent tissue, such as treble-milled cotton swanskin, may be impregnated with the stain removers. This impregnated tissue is advantageously kept in an airtight container, such as a plastic bag.

70 The stain removers according to the present invention, by reason of their composition, are not only harmless to the skin in normal use but also have the advantage that they can be completely washed off with water without leaving any feeling of stickiness, contraction of the skin, itching or brittleness.

75 The following Examples are given for the purpose of illustrating the present invention, the parts being parts by weight:—

EXAMPLE 1

30 parts of very finely ground quartz (Sikron F 500) and 35 parts of water are stirred, in a stirring apparatus, with the addition of 3 parts of wax emulsifier and 10 parts of ceresin, until a dispersion is produced. 27 parts of ricinoleic acid polyglycol ester and 110 parts of paraffin oil are thereupon added and then, while continually stirring, 15 parts of dibutyl phthalate, 5 parts of diacetone alcohol, 5 parts of glycolic acid ester, 5 parts of methoxy-butanol and, finally, 45 parts of oleic acid diethanolamide are added. Mixing is effected, with constant stirring, at about 40°C.

EXAMPLE 2

100 parts of very finely ground quartz (Sikron W 3) and 10 parts of water are mixed in a stirring device with the addition of 1 part of wax emulsifier and 5 parts of ester wax until a dispersion is produced. 9 parts of ricinoleic acid polyglycol ester are then added, together with 40 parts of paraffin oil and, while continuously stirring, 5 parts of dibutyl phthalate, 1.6 parts of diacetone alcohol, 1.6 parts of glycolic acid ester, 1.6 parts of methoxy-butanol and, finally, 15 parts of oleic acid diethanolamide are added. Mixing is effected, with constant stirring, at about 40°C.

EXAMPLE 3

115 25 parts of finely ground cellulose, (Mikrozellstoff 570-26) are added to 80 parts of a 4% by weight aqueous solution of hydroxyethylmethyl-cellulose and thoroughly mixed with the aid of a powerful stirrer. To this mixture is added portionwise a dispersion which has been separately prepared, with heating, to 60°C., from 90 parts paraffin oil DAB VI white, 30 parts fatty alcohol polyglycol ether, 10 parts di-(2'-methoxyethyl) phthalate, 12 parts ethyl glycolate, 10 parts methoxy-butanol, 10 parts diacetone alcohol, 5 parts 2'-ethoxy-ethyl acetate, 10 parts polyethylene oxide wax, 7.5 parts polyglycol oleic acid ester (Ethofat 60/15), 7.5 parts polyglycol stearylamine ("Erthomeen"

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- S/15) and 3 parts wax emulsifier. ("Etho-meen" is a Registered Trade Mark). After prolonged stirring, a homogeneous dispersion is produced which is then heated to 50°C.
- 5 Treble-milled cotton swanskin is impregnated on a foulard with this dispersion and squeezed out to 2.5 times its density. After being hung for a short time and cut up, a finished stain removing duster is obtained.
- 10 EXAMPLE 4
- 35 parts fatty alcohol polyglycol ether, 12 parts dinonyl phthalate, 5 parts diacetone alcohol, 5 parts 2'-ethoxy-ethyl glycolate, 5 parts methoxy-butanol, 36 parts oleic acid, 9 parts diethanolamine, 3 parts wax emulsifier (Hoe 2106) (non-ionic emulsifier of Farbwereke Hoechst AG) and 10 parts by weight of ester wax are added to 110 parts of pure olive oil and a homogeneous solution is produced by thorough mixing. (The ester wax used is a pale yellowish product obtained by the peroxidation of montan wax, followed by esterification. It has a drop point of 76—81 minutes, a solidification point of 70—74°C., an acid number of 15—20, a saponification number of 140—160 and a density at 20°C. of 1.01—1.03).
- To this mixture are added portionwise, with vigorous stirring, 40 parts of very finely ground quartz (Sikron F 300) mixed with 30 parts of water and stirring is continued until a homogeneous dispersion is obtained. While still stirring, the dispersion is heated to 65°C. and an open-celled, soft, elastic polyurethane foamed sheet is impregnated therewith on a foulard, then squeezed out, hung out and cut up into convenient size. The product thus obtained is ready for immediate use. Cellulose glass bags are used to contain it and may be provided with an adhesive closure.
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- an emulsifier for said solvent; and a biologically-decomposable fatty acid derivative (as hereinbefore defined) which acts as a skin preserver, together if necessary with an emulsifier for said fatty acid derivative.
2. A method according to claim 1, wherein the stain remover produced is subsequently used for the impregnation of a highly absorbent fabric.
3. A method according to claim 2, wherein the fabric is treble-milled cotton swanskin.
4. A method according to claim 1, wherein the stain remover produced is subsequently used for the impregnation of an open-celled foamed material.
5. A method according to any of the preceding claims, wherein the abrasive used is quartz powder, cellulose, pumice, corundum or aluminium phosphate.
6. A method according to claim 5, wherein the quartz powder used has a particle size of 0.05 to 0.1 microns.
7. A method according to any of the preceding claims, wherein the lubricant used is paraffin oil.
8. A method according to any of the preceding claims, wherein the surface-polishing agent used is ceresin or an ester wax.
9. A method according to any of the preceding claims, wherein the emulsifier used for the lubricant and surface-polishing agent is the diethanolamine salt of oleic acid.
10. A method according to any of the preceding claims, wherein the solvent used is dibutyl phthalate, methoxy-butanol, diacetone alcohol, a higher ester of glycolic acid or a mixture thereof.
11. A method according to any of the preceding claims, wherein the biologically-decomposable fatty acid derivative used is an oleic acid diethanolamide.
12. A method according to any of the preceding claims, wherein a ricinoleic acid polyglycol ester is used as emulsifier for the solvent.
13. A method according to claim 1 for producing a stain remover, substantially as hereinbefore described and exemplified.
14. Stain removers, whenever produced by the method according to any of claims 1 to 13.
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